

AA-101(t)

AA-104(t)

Analog audio distribution amplifier
1x6 / 1x4
- for SRU rack frame

USER MANUAL FOR USE AND MAINTENANCE

Read the instructions before using the device.

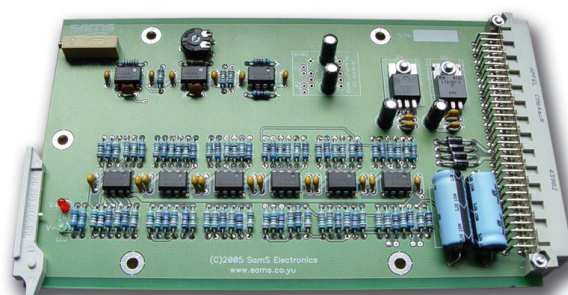
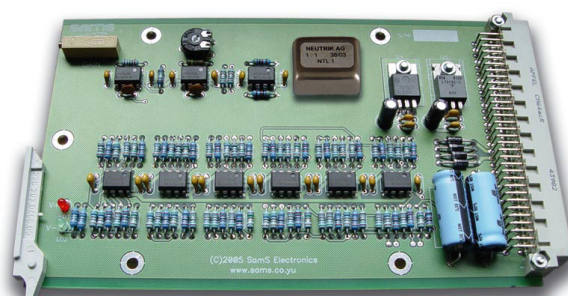
Keep this manual for periodic usage.



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Published: 05. april 2013.
Updated: 03. july 2014.



WARRANTY

Dear User,

Thank you very much for purchasing our product.

Your purchase is a wise investment. The equipment you have purchased is manufactured with great care from high-quality parts and materials. It is designed to fully meet the needs according to specifications, if properly installed, used and maintained according to the enclosed instructions.

Any technical failure or deficiency that occurs during the warranty period specified on the invoice of the purchased equipment will be inspected and serviced by Sams elektronik doo or an authorized service center of the manufacturer, with the conditions set out in the warranty statement.

THIS DEVICE IS INTENDED FOR PROFESSIONAL USE.**WARRANTY STATEMENT**

1. Product has declared characteristics. Within the warranty period, manufacturer ensures the removal of technical failures, product defects or replacement of products if declared characteristics of the product are changed.
2. If the goods are not delivered as specified with the contract, the consumer has the right to request from the manufacturer / service provider to eliminate the lack of conformity, without charge, repair or replacement, or to request an appropriate price reduction or terminate the contract.
3. Any repair or replacement must be made within a reasonable time without significant inconvenience to the consumer, taking into account the nature and the purpose for which the consumer has purchased the product.
4. The consumer has the right to terminate the contract, if he can realize the right to repair or replacement, or if the manufacturer / servicer has not completed repair or replacement within a reasonable time or if the manufacturer / servicer did not perform repair or replacement without significant inconvenience to the consumer.
5. The consumer may not terminate the contract if the lack of conformity of the product is negligible.
6. The product will function properly when used in accordance with the user manual.
7. Period of servicing the product is 6 years from the launch on the market.

The product purchased outside the territory of Serbia does not fall under the terms of this warranty, only to 1 year factory warranty from date of purchase.

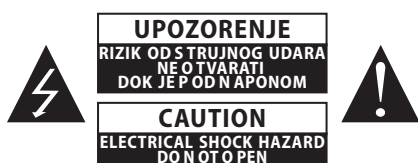
TERMS OF WARRANTY

1. The warranty period begins on the date of sale referred in the invoice.
2. The buyer loses the right to warranty if the defect cause failure from not following the user manual instructions, improper installation, comes to mechanical damage during use, repairs and modifications by unauthorized persons, installation of non-genuine spare parts, and if the buyer does not comply with all warnings listed in the user manual.
3. The warranty is voided if the device is damaged during the disturbances from the environment, natural disasters (floods, hail, etc.), suffered an electric shock or lightning strike.

IMPORTANT NOTES

1. Be sure to thoroughly read the user manual.
If you have any doubts about the instructions, contact the technical support of the manufacturer.
2. Before contacting for technical help, please make sure that are provided with all necessary conditions for normal operation.
3. If the malfunction or defect in the device does not eliminate within a reasonable time from the date of failure, the warranty period shall be extended for as many days as the unit is in service.
4. For all maintenance interventions shall solely be authorized services listed in this Warranty Certificate.

SAFETY WARNINGS FOR SRU RACK FRAME



IMPORTANT SAFETY

WARNING

TO AVOID RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THE UNIT TO MOISTURE OR RAIN



The symbol "lightning in a triangle" is to alert the user to the presence of high voltage. In poor conditions the user may be exposed to shock.



The symbol "exclamation mark in a triangle" is to alert the user to comply by the terms of use in user's manual, which is supplied with the device.



CLASS I DEVICE

Grounding is connected to the chassis of the device.
The power supply is protected with fuse against overload.



DECLARATION OF CONFORMITY for product:

SRU RACK FRAME WITH POWER SUPPLY (PSU-212) WITH CORRESPONDING MODULES AND BACK CONNECTORS

The product is designed and manufactured according to the following regulations:

- Electromagnetic Compatibility Directive (EMC)
- Low Voltage Directive (ELV)

Documentation confirming statements can be obtained on written request for review.

WARNING

TO AVOID ELECTRIC SHOCK, DO NOT OPEN COVER.

DEVICE MAINTENANCE REQUIRES PROFESSIONAL PERSON AUTHORIZED BY THE MANUFACTURER.

1. Read all safety and operating instructions before using the device.
2. Keep all safety and operating instructions.
3. Follow the instructions from the user manual.
4. Do not upgrade device, except in the case advised by the manufacturer.
5. Do not use the device in the presence of water and / or moisture.
6. Do not pour water or moisten the device with any type of liquid.
7. Openings on device are provided for ventilation.
8. Do not block air flow through the ventilation openings.
9. This product is powered by AC ~ 230V ± 10%, 50Hz.
10. This product is equipped with a three-wire cord with grounding.
11. This device is equipped with a protective fuse in the power outlet. Do not bypass fuse.
12. Do not replace the fuse. Replacement can be made by a person authorized by the manufacturer.
13. Do not bend the power cord so that it can be damaged.
14. Connect connectors as in the enclosed instructions. Deviations from the allowed values predicted for the inputs and outputs of the device can cause severe damage and warranty void.
15. Do not use the device in an environment that contains flammable or explosive materials in any physical state.
16. Turn off the power cord before cleaning. Do not use liquid, aerosol or flammable cleaners. Use only a dry cloth.
17. Servicing is performed by a qualified person. Removing the cover user is exposed to high voltages.
18. Never use the device when the cover is open and the device is powered on.
19. Do not expose to extreme high or low temperatures.
20. Do not expose to sudden temperature changes.
21. Call service in the following cases:
 - The power cord or plug is damaged
 - Liquid or foreign objects is inside the device
 - The machine is exposed to water and moisture
 - The device does not function according to specification
 - The unit has been dropped or damaged
 - The characteristics are significantly changed
22. Use only specified replacement parts.
23. Professional person authorized by the manufacturer must check the device after completion of service.
24. Allow a free rack unit (1RU) above and below the device for ventilation or put rack fan under the device.

Pictures and drawings listed in this user manual are for information purposes only and may differ from the actual device. Design and specifications of the device may change without prior notice.

TECHNICAL SUPPORT AND SERVICE

Sams elektronik has made every effort to ensure that the equipment works in perfect condition. In the event that problems that occur can not be resolved, or if you have any questions regarding this equipment or information about other products produced from Sams elektronik, contact your local sales representative or call Sams elektronik directly through one of the ways listed below:

Sales: +381 11 3806 254

Technical support: +381 11 2402 212

Service: +381 11 4056 051

Email:

Sales - sasa@sams.rs

Technical support and service - sams@sams.rs

Web site: www.sams.rs

Address:

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48 Zivka Davidovica st

11050 Belgrade

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UNPACKING AND INSTALLATION

The box contains:

- Module
- Back connector (optional)
- Protective pad for SRU rack frame (optional)
- M2.5x6/7985 screw (optional)
- SRU rack frame (optional)
- Power cord for SRU rack frame (optional)
- User manual (optional)

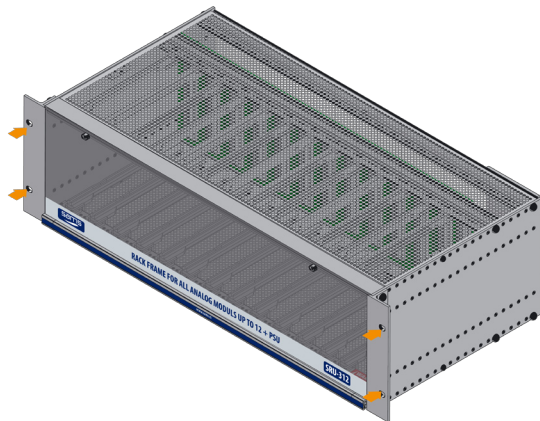
Before use, check the contents of the box. For any deficiency report to the seller or the manufacturer of the product.

DEVICE IS INSULATED BY PROTECTIVE WRAP AND PACKED IN A CARDBOARD BOX. DEVICE IS SENSITIVE TO SHAKES AND DROPS. HANDLE WITH CARE DURING TRANSPORT AND ASSEMBLY.

Check if the product is damaged during transport.

PROCEDURES FOR SAFE USE OF THE DEVICE:

1. - If the device is not supplied with SRU rack frame, remove the protective wrap from the device. If the device is supplied with SRU rack frame, remove the protective wrap from the chassis.
- For devices that are AC 230V / 50Hz powered, the device is supplied with power cord.
- Use only power cord that comes with the device.
2. SRU rack frame is mounted in a 19" special-purpose rack cabinets designed for this type of device. Screw device with four screws. Screws for fastening are not supplied with the device.
3. The device must be connected to ground. A device that is not connected to the grounding does not function properly according to factory declarations and can cause adverse effects on users and other equipment.
4. Strictly comply to all steps for proper connection of devices in the system.
5. On the SRU rack frame are 3 types of mass (CHASSIS, MAINS and 0V). The factory, all three are connected. According to the user's needs, the masses can be switched over between them.



Places for fastening

MAINTENANCE

The system maintains only person authorized by Sams elektronik doo.

Any voluntarily opening device, upgrading or servicing is strictly prohibited and is subject to warranty void, and the possibility of injury.

REMOVAL AND STORAGE

1. Before dismantling the device, switch off the power, remove the power cord and remove all other connectors.
2. Remove the four screws for fastening.
3. Remove the device from rack cabinet.
4. Wrap the machine in the foil to protect it from dust. Package it in a box.
5. The device must be stored in a room without moisture.

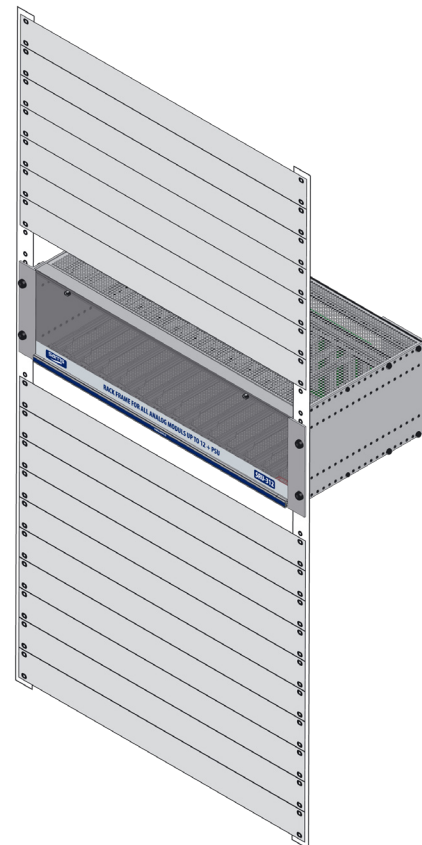
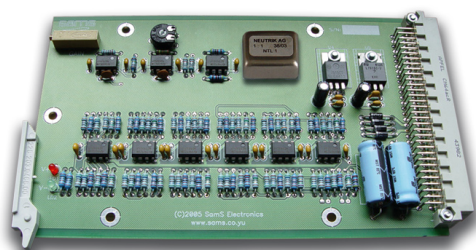


Illustration - mounted device

DESCRIPTION

AA-101t

Analog audio distribution amplifier with transformer coupled input 1x6



- Low noise (100dB S/N)
- 6 outputs
- Individual buffer outputs
- Gain range -6dB to +6dB
- +24/16dB maximum output level
- Dual low voltage AC power input
- Available in 66Ω or 600Ω output impedance
- Transformer coupled input

The AA-101t mono audio distribution amplifier with Transformer coupled input is designed for Broadcast Television and post Productions. Excellent output isolation and inter channel crosstalk is assured by the use of individual drivers for each output. Outputs can be customized, 600 Ω or low 66 Ω as per AES recommendations 1708 (1-3). The modules mount into the SRU-112 frames 3RU, 12 module capacity.

TECHNICAL SPECIFICATIONS

Specifications and designs are subject to change without notice

GENERAL INFORMATION

- Code:001.210
- Weight: 0.4 Kg
- Type:module
- Dimensions:100 x 160mm
- Required:SRU rack frame, back panel CA-6
- Delivery includes: . device, user manual, rear panel (optional)

INPUT

- Impedance:>40K, balanced
- Common mode rejection:>80dB at 50Hz

OUTPUT

- Number:6, electronically balanced
- Impedance:60Ω or 600Ω
- Output to output isolation:>70dB at 20Hz to 20KHz
- Max output level:+24/16dB (600Ω)

PERFORMANCE

- Gain:-6dB do +6dB
- Frequency response:<±0.1dB (20Hz to 20KHz)
- S/N ratio:>100dB unity gain 20Hz to 20KHz
- TDH:0.05% at 20Hz to 20KHz
- Inter channel cross talk:>90dB at 20Hz to 20KHz

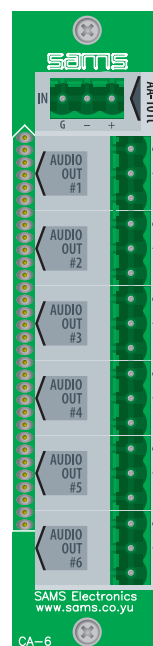
POWER

- Voltage:2 x 12V AC
- Power:7W

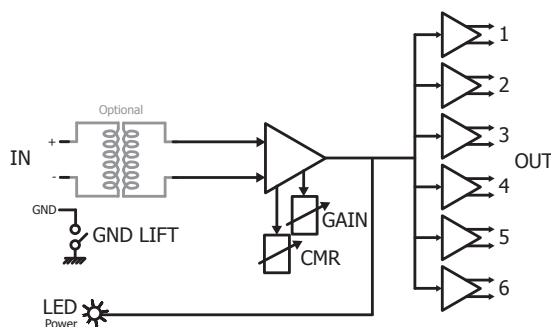
TEMPERATURE

- Performance:5-40°C
- Operating:0-50°C

BACK CONNECTOR CA-6



BLOCK DIAGRAM

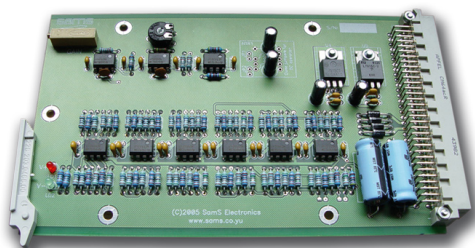


ORDERING INFORMATION

Code	Name	Description
001.210	AA-101t	Analog audio DA (transformer) 1x6
001.503	CA-6	Back connector
001.600	SRU-312	Rack frame for 12 modules
001.601	SRU-310	Rack frame for 10 modules
001.605	SRU-306	Rack frame for 6 modules

AA-101

Analog audio distribution amplifier 1x6



- Low noise (100dB S/N)
- 6 outputs
- Individual buffer outputs
- Gain range -6dB to +6dB
- +24/16dB maximum output level
- Dual low voltage AC power input
- Available in 66Ω or 600Ω output impedance

The AA-101 mono audio distribution amplifier is designed for Broadcast Television and post Productions. Excellent output isolation and inter channel crosstalk is assured by the use of individual drivers for each output. Outputs can be customized, 600Ω or low 66Ω as per AES recommendations 1708 (1-3). The modules mount into the SRU-112 frames 3RU, 12 module capacity.

TECHNICAL SPECIFICATIONS

Specifications and designs are subject to change without notice

GENERAL INFORMATION

- Code:001.202
- Weight: 0.4 Kg
- Type:module
- Dimensions:100 x 160mm
- Required:SRU rack frame, back panel CA-6
- Delivery includes:.. device, user manual, rear panel (optional)

INPUT

- Impedance:>40K, balanced
- Common mode rejection:>80dB at 50Hz

OUTPUT

- Number:6, electronically balanced
- Impedance:60Ω or 600Ω
- Output to output isolation: >70dB at 20Hz to 20KHz
- Max output level: +24/16dBu (600Ω)

PERFORMANCE

- Gain:-6dB do +6dB
- Frequency response:<±0.1dB (20Hz to 20KHz)
- S/N ratio: >100dB unity gain 20Hz to 20KHz
- Inter channel cross talk: >90dB at 20Hz to 20KHz

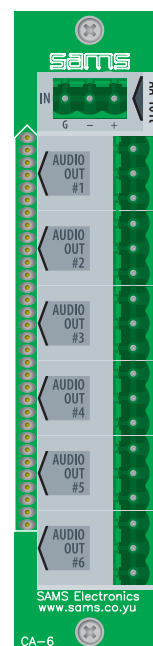
POWER

- Voltage: 2 x 12V AC
- Power:7W

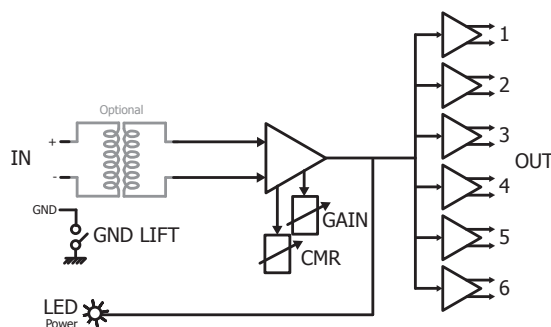
TEMPERATURE

- Performance: 5-40°C
- Operating: 0-50°C

BACK CONNECTOR CA-6



BLOCK DIAGRAM

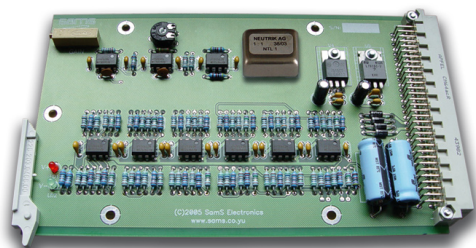


ORDERING INFORMATION

Code	Name	Description
001.202	AA-101	Analog audio DA 1x6
001.503	CA-6	Back connector
001.600	SRU-312	Rack frame for 12 modules
001.601	SRU-310	Rack frame for 10 modules
001.605	SRU-306	Rack frame for 6 modules

AA-104t

Analog audio distribution amplifier with transformer coupled input 1x4



- Low noise (100dB S/N)
- 4 outputs
- Individual buffer outputs
- Gain range -6dB to +6dB
- +24/16dB maximum output level
- Dual low voltage AC power input
- Available in 66Ω or 600Ω output impedance
- Transformer coupled input

The AA-104t mono audio distribution amplifier with Transformer coupled input is designed for Broadcast Television and post Productions. Excellent output isolation and inter channel crosstalk is assured by the use of individual drivers for each output. Outputs can be customized, 600 Ω or low 66 Ω as per AES recommendations 1708 (1-3). The modules mount into the SRU-112 frames 3RU, 12 module capacity.

TECHNICAL SPECIFICATIONS

Specifications and designs are subject to change without notice

GENERAL INFORMATION

- Code:001.219
- Weight: 0.4 Kg
- Type:module
- Dimensions:100 x 160mm
- Required:SRU rack frame, back panel CA-6
- Delivery includes: . device, user manual, rear panel (optional)

INPUT

- Impedance:>40K, balanced
- Common mode rejection:>80dB at 50Hz

OUTPUT

- Number:4, electronically balanced
- Impedance:60Ω or 600Ω
- Output to output isolation: >70dB at 20Hz to 20KHz
- Max output level: +24/16dB (600Ω)

PERFORMANCE

- Gain:-6dB do +6dB
- Frequency response:<±0.1dB (20Hz to 20KHz)
- S/N ratio: >100dB unity gain 20Hz to 20KHz
- TDH:0.05% at 20Hz to 20KHz
- Inter channel cross talk: >90dB at 20Hz to 20KHz

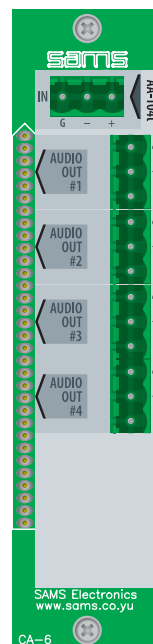
POWER

- Voltage: 2 x 12V AC
- Power:7W

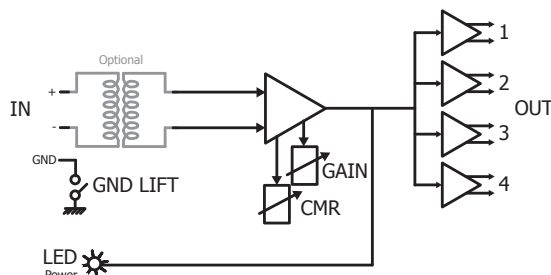
TEMPERATURE

- Performance: 5-40°C
- Operating: 0-50°C

BACK CONNECTOR CA-6



BLOCK DIAGRAM

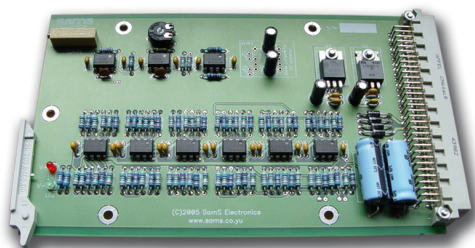


ORDERING INFORMATION

Code	Name	Description
001.219	AA-104t	Analog audio DA (transformer) 1x4
001.503	CA-6	Back connector
001.600	SRU-312	Rack frame for 12 modules
001.601	SRU-310	Rack frame for 10 modules
001.605	SRU-306	Rack frame for 6 modules

AA-104

Analog audio distribution amplifier 1x4



- Low noise (100dB S/N)
- 4 outputs
- Individual buffer outputs
- Gain range -6dB to +6dB
- +24/16dB maximum output level
- Dual low voltage AC power input
- Available in 66Ω or 600Ω output impedance

The AA-104 mono audio distribution amplifier is designed for Broadcast Television and post Productions. Excellent output isolation and inter channel crosstalk is assured by the use of individual drivers for each output. Outputs can be customized, 600Ω or low 66Ω as per AES recommendations 1708 (1-3). The modules mount into the SRU-112 frames 3RU, 12 module capacity.

TECHNICAL SPECIFICATIONS

Specifications and designs are subject to change without notice

GENERAL INFORMATION

- Code:001.218
- Weight: 0.4 Kg
- Type:module
- Dimensions:100 x 160mm
- Required:SRU rack frame, back panel CA-6
- Delivery includes:.. device, user manual, rear panel (optional)

INPUT

- Impedance:>40K, balanced
- Common mode rejection:>80dB at 50Hz

OUTPUT

- Number:4, electronically balanced
- Impedance:60Ω or 600Ω
- Output to output isolation:..... >70dB at 20Hz to 20KHz
- Max output level: +24/16dBu (600Ω)

PERFORMANCE

- Gain:-6dB do +6dB
- Frequency response:<±0.1dB (20Hz to 20KHz)
- S/N ratio: >100dB unity gain 20Hz to 20KHz
- Inter channel cross talk: >90dB at 20Hz to 20KHz

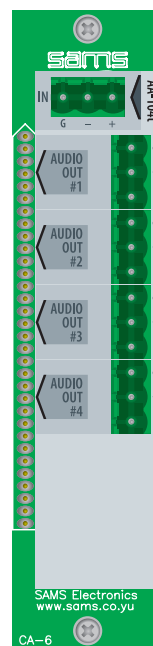
POWER

- Voltage: 2 x 12V AC
- Power:7W

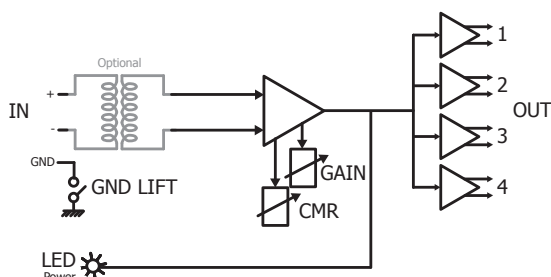
TEMPERATURE

- Performance: 5-40°C
- Operating: 0-50°C

BACK CONNECTOR CA-6



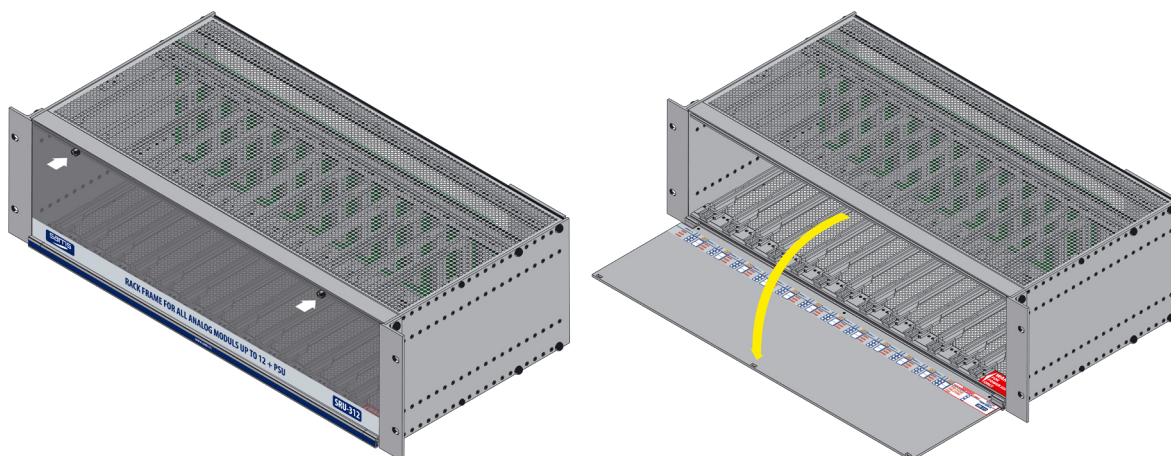
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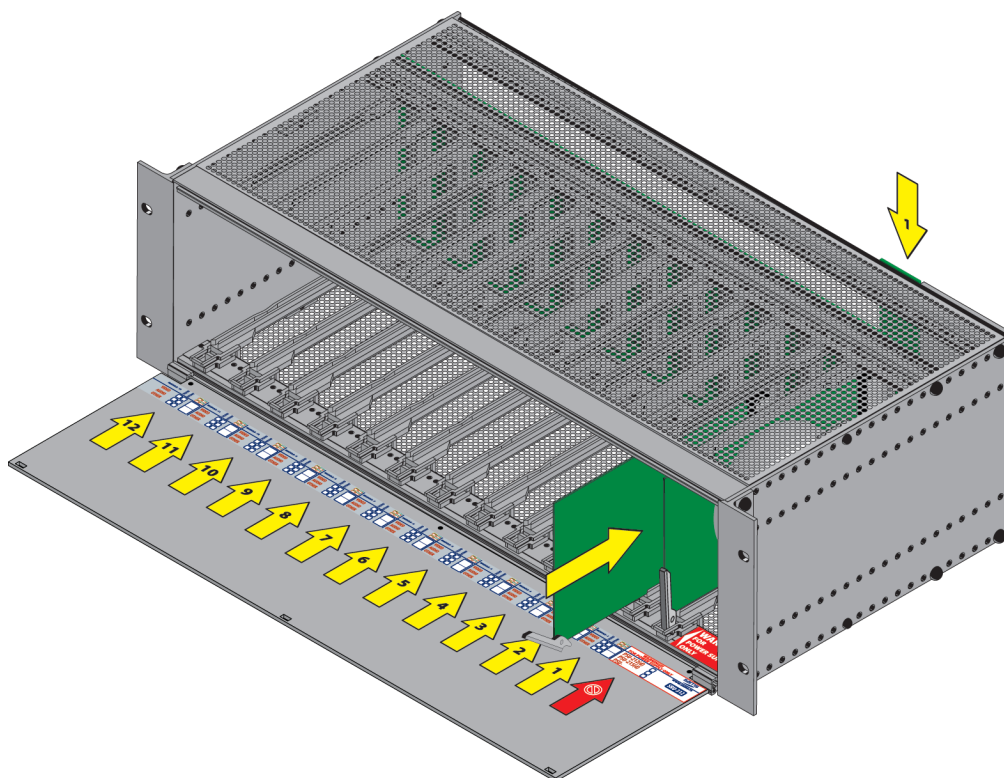
ORDERING INFORMATION

Code	Name	Description
001.218	AA-104	Analog audio DA 1x4
001.503	CA-6	Back connector
001.600	SRU-312	Rack frame for 12 modules
001.601	SRU-310	Rack frame for 10 modules
001.605	SRU-306	Rack frame for 6 modules

MODULE INSTALATION IN SRU RACK FRAMES



- On the front side of rack frame, unscrew the screws.
- Open the door.



Make sure that the module is set to the correct place in relation to the back connector.

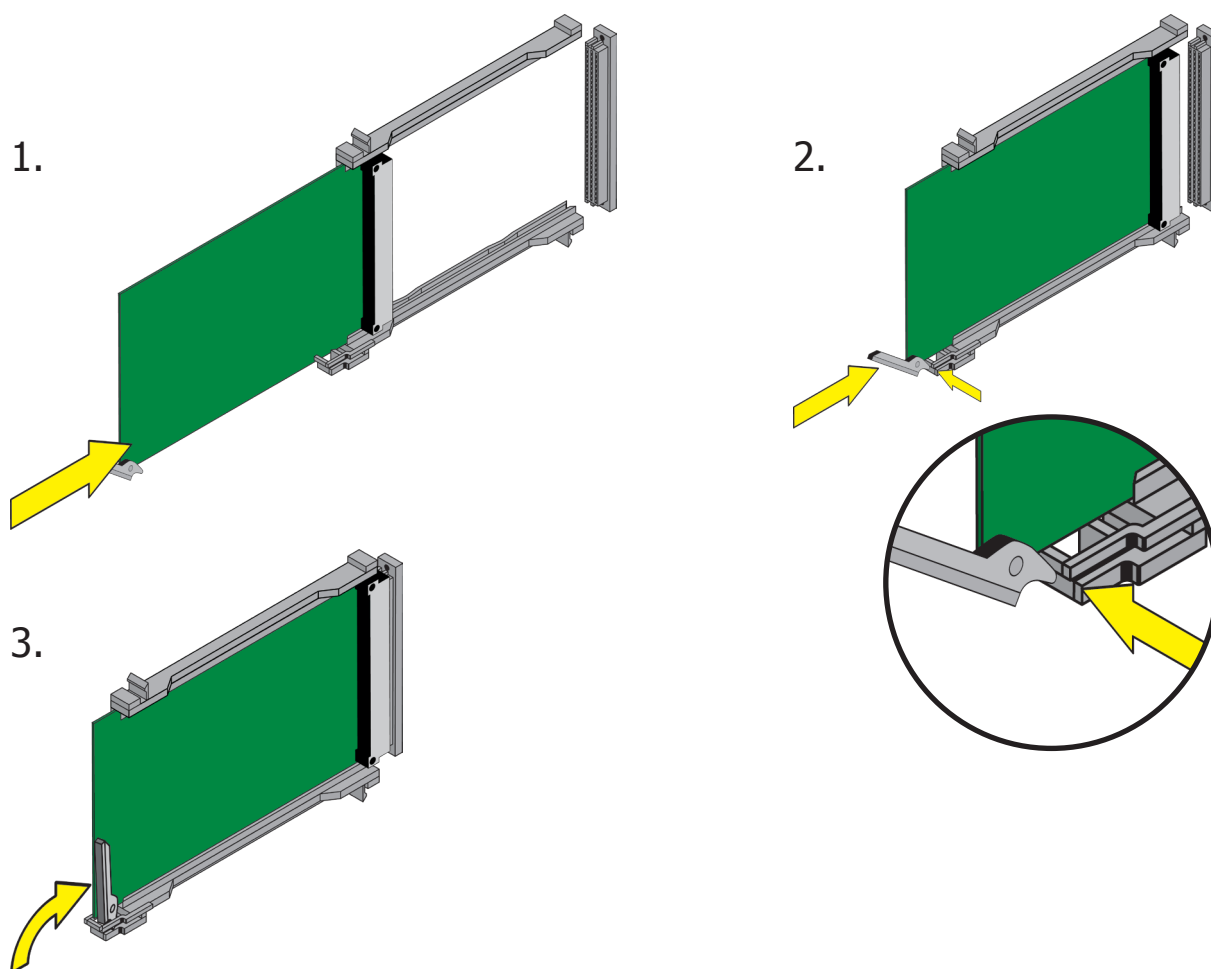
BEFORE INSTALLING OR REMOVING THE MODULE FROM SRU, ALWAYS TURN OFF THE POWER

Lock module with lever to the position.

NOTE: NEVER PLACE MODULE TO PLACE OF THE POWER SUPPLY MODULE!



The label that indicates the place for power supply module

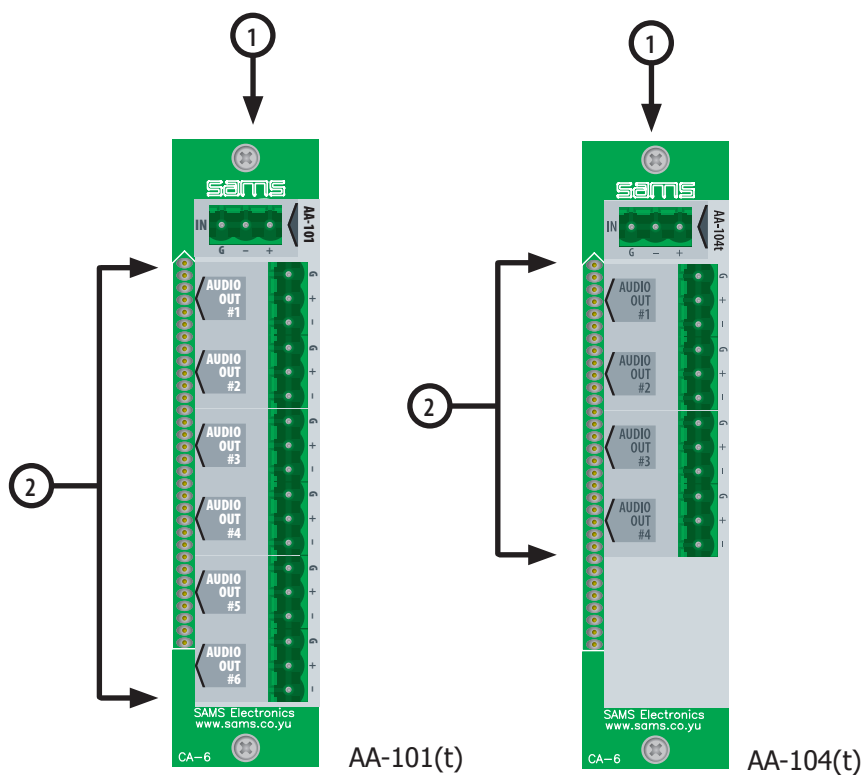
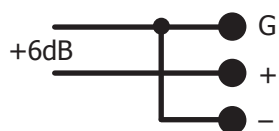


1. The module set between the guides (not metal plate).
2. Locking lever mount behind the groove.
3. Push the lever to lock in an upright position. The module is locked.

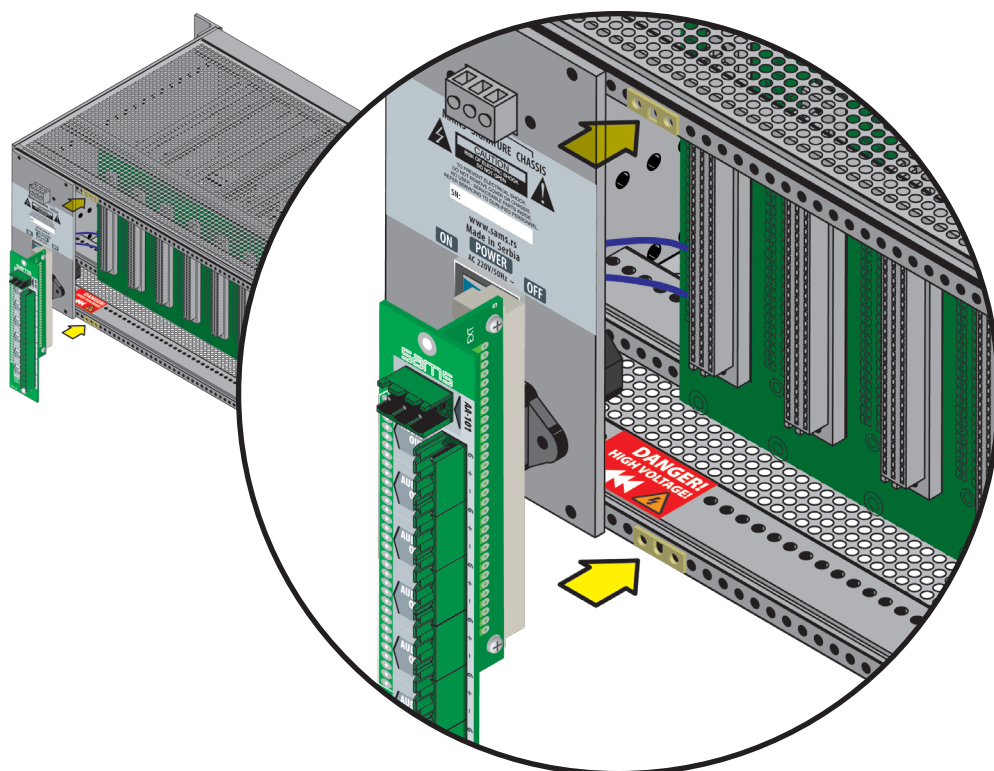
BACK CONNECTORS

- 1) AUDIO INPUT - balanced
- 2) AUDIO OUTPUTS - balanced

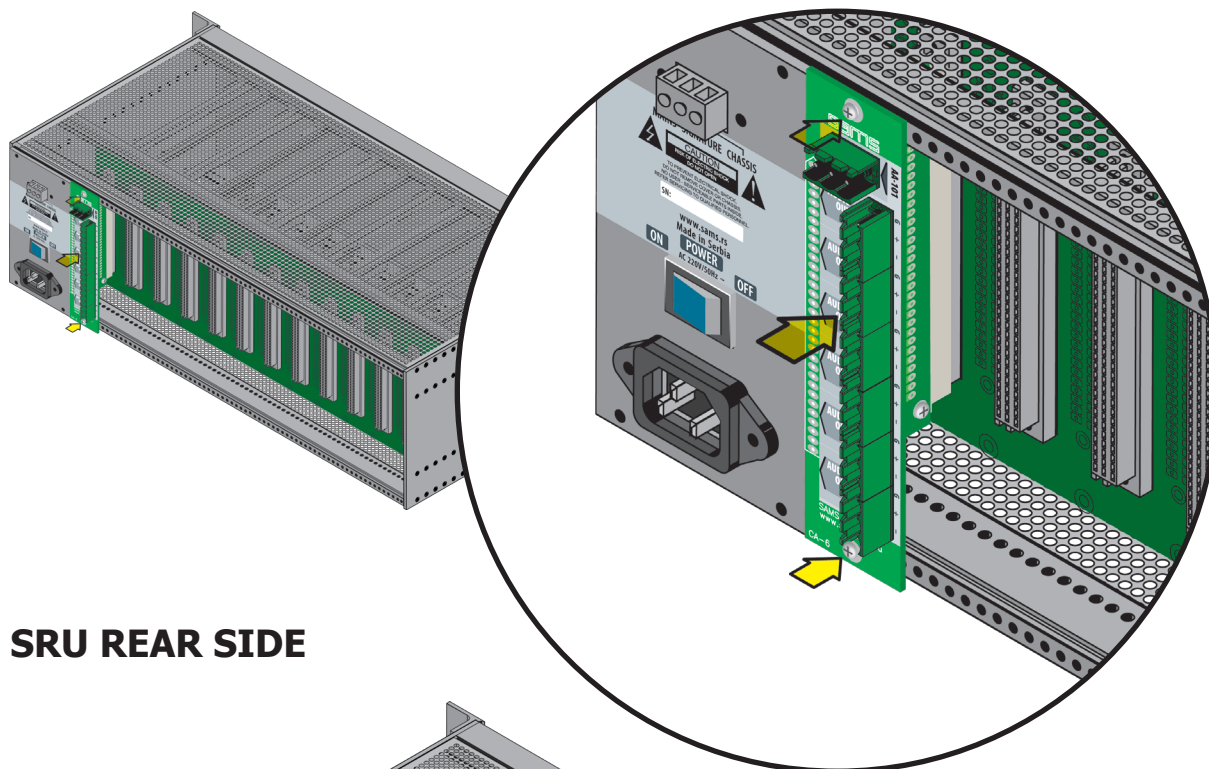
Unbalancing audio outputs



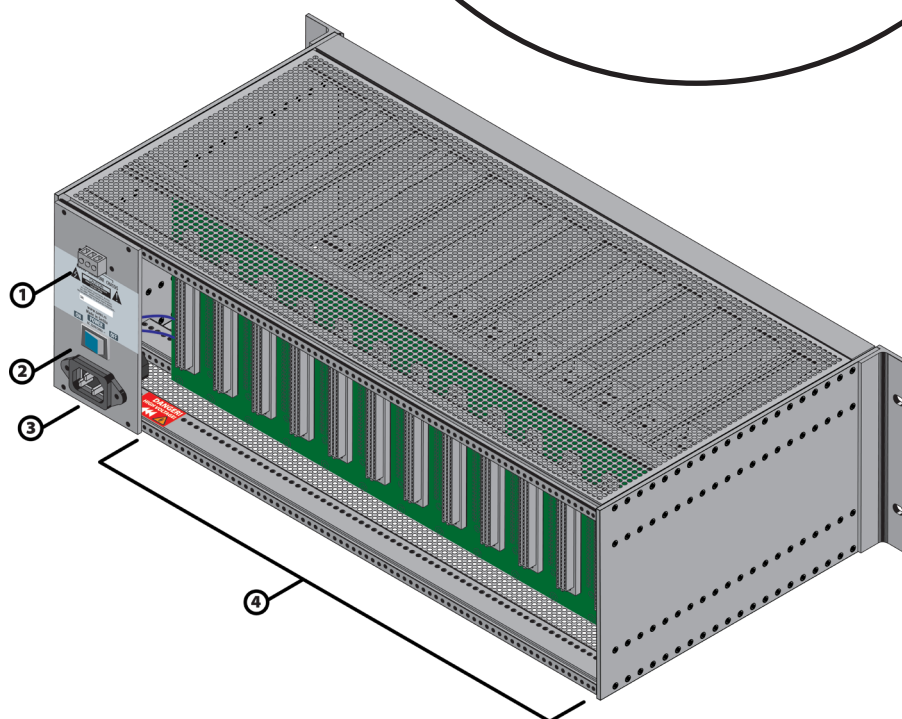
Be sure to install a protective pad before installing the back connectors.



Place the back connector. Fix the back connector with M2.5 screw.



SRU REAR SIDE



Rear side view

1. Mass
2. Power switch
3. The socket
4. Connections for back connectors



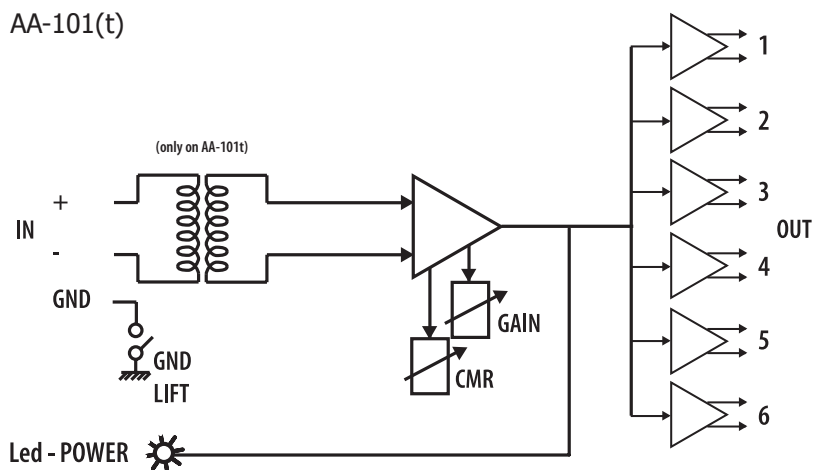
DO NOT INSERT SHARP METAL OBJECTS OR FINGERS INTO THE SPACE BEHIND THE POWER PANEL!

THE SIGN "LIGHTNING IN A TRIANGLE" IS TO ALERT THE USER TO THE PRESENCE OF LIFE-THREATENING HIGH POWER.

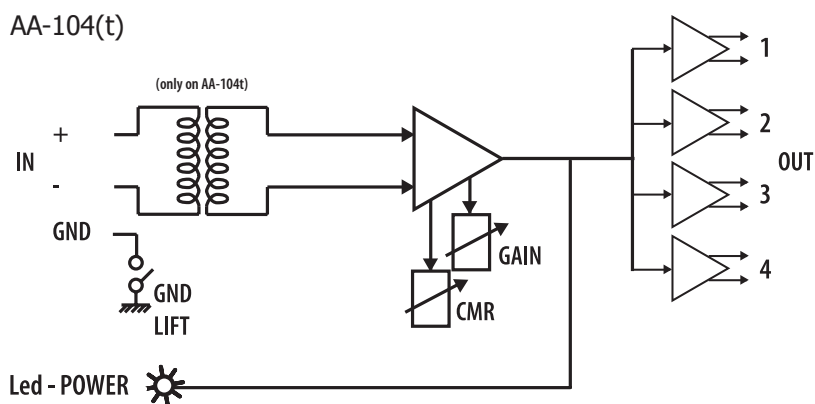
LABEL IS PLACED NEXT TO POWER PANEL.

BLOCK DIAGRAM

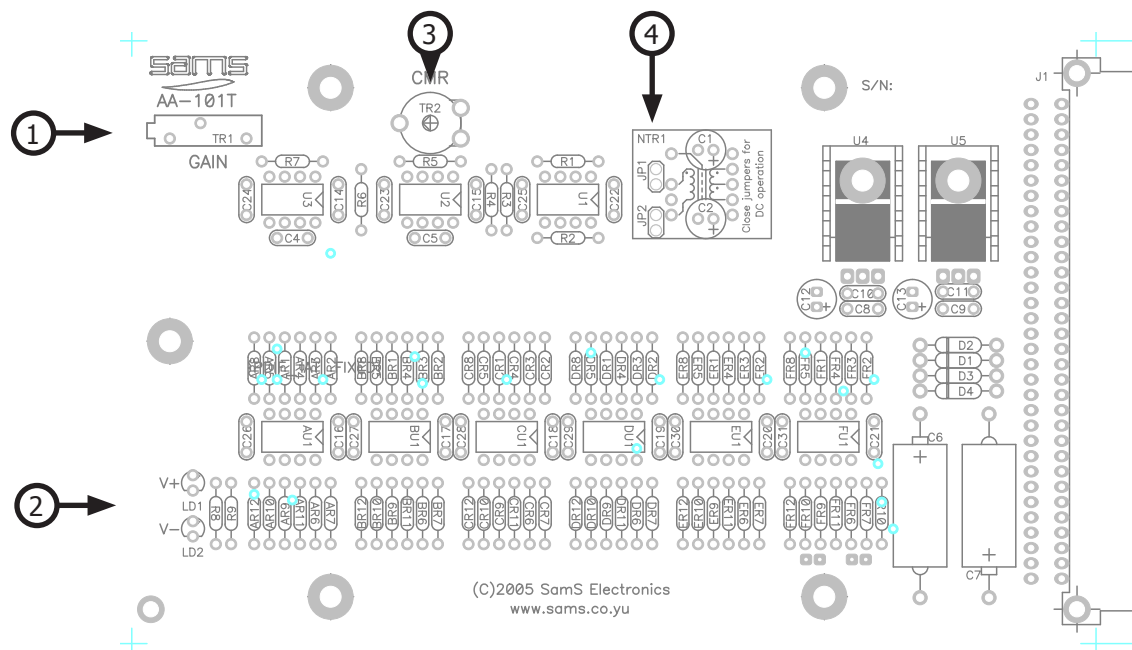
AA-101(t)



AA-104(t)



PCB WITH THE LAYOUT OF ELEMENTS



- 1) GAIN - Trimer to correct the overall level of audio signals. Allows gain correction of $\pm 6\text{dB}$.
- 2) LEDs to indicate the presence of power. Light up when power is present.
- 3) CMR - The suppression of the common signal
- 4) Input DC / AC coupling - Input with or without suppressing DC component

ADJUSTMENT

Audio distribution is factory set to 0dB input / 0dB output. For adjust is used 1m cable.

To adjust the distribution in the system, it is necessary to have:

- Signal generator (a signal which is brought to the input of the distribution)
- Adequate measuring equipment (output signal of the distribution)
- A small flathead screwdriver (for adjusting)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

